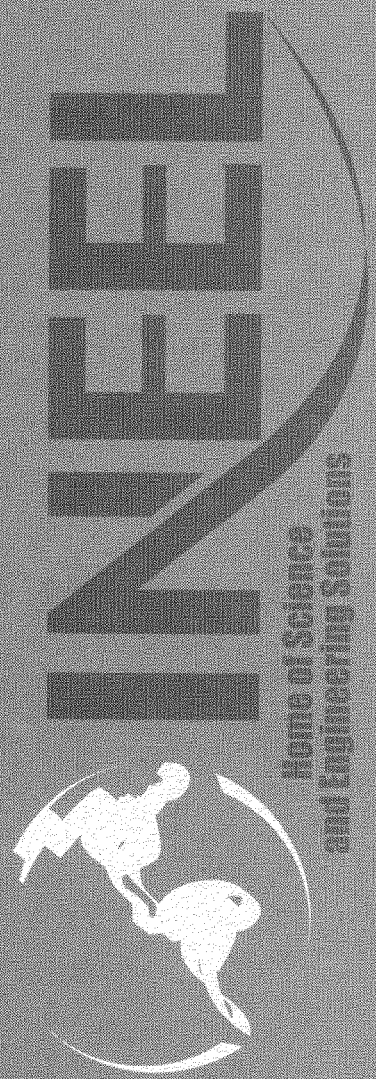
INEEL/EXT-02-01033
Revision 2
February 2003

# U.S. Department of Energy Idaho Operations Office, Lead Agency Action Memorandum Time-Critical Removal Action for Unexploded Ordnance, Operable Unit 10-04, Idaho National Engineering and Environmental Laboratory

*Thomas J. Haney*
*February 2003*




*Idaho National Engineering and Environmental Laboratory*
*Bechtel BWXT Idaho, LLC*

INEEL/EXT-02-01033
Revision 2

# U.S. Department of Energy Idaho Operations Office, Lead Agency Action Memorandum Time-Critical Removal Action for Unexploded Ordnance, Operable Unit 10-04, Idaho National Engineering and Environmental Laboratory

Thomas J. Haney

February 2003

Idaho National Engineering and Environmental Laboratory
Environmental Restoration Program
Idaho Falls, Idaho 83415

Prepared for the
U.S. Department of Energy
Assistant Secretary for Environmental Management
Under DOE Idaho Operations Office
Contract DE-AC07-99ID13727

# ABSTRACT

This report is the decision document that provides for the removal of unexploded ordnance from critical Idaho National Engineering and Environmental Laboratory areas, and the detonation of the unexploded ordnance at the Mass Detonation Area on the Idaho National Engineering and Environmental Laboratory. Unexploded ordnance poses personnel safety and security risks. This Time-Critical Removal Action is being initiated because these live and fused munitions are on the ground surface and readily accessible to site personnel. Completing this action will eliminate this risk to site field personnel.

# CONTENTS

## TABLES

# ACRONYMS

| | |
|---|---|
| ARAR | applicable or relevant and appropriate requirement |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFA | Central Facilities Area |
| CFR | Code of Federal Regulations |
| CoE | Corps of Engineers |
| DOE | U.S. Department of Energy |
| DOE-ID | U.S. Department of Energy Idaho Operations Office |
| EPA | U.S. Environmental Protection Agency |
| FFA/CO | Federal Facility Agreement and Consent Order |
| HE | high explosive |
| HSO | health and safety officer |
| IDAPA | Idaho Administrative Procedures Act |
| IDEQ | Idaho Department of Environmental Quality |
| INEEL | Idaho National Engineering and Environmental Laboratory |
| INTEC | Idaho Nuclear Technology and Engineering Center |
| MCP | management control procedure |
| MDA | Mass Detonation Area |
| NAAQS | National Ambient Air Quality Standards |
| NODA | Naval Ordnance Disposal Area |
| OU | operable unit |
| RCRA | Resource Conservation and Recovery Act |
| RDX | research development explosive; a.k.a., cyclotrimethylene trinitramine or cyclonite |
| TCRA | Time-Critical Removal Action |
| TM | technical manual |
| TNT | trinitrotoluene |

| | |
|---|---|
| TRA | Test Reactor Area |
| TSP | total suspended particulate |
| USC | United States Code |
| UXO | unexploded ordnance |
| WAG | waste area group |

# U.S. Department of Energy Idaho Operations Office, Lead Agency Action Memorandum Time-Critical Removal Action for Unexploded Ordnance, Operable Unit 10-04, Idaho National Engineering and Environmental Laboratory

## 1. PURPOSE

This action memorandum is the decision document that identifies the selected alternative of Time-Critical Removal Action (TCRA) for an area of unexploded ordnance (UXO) within the Idaho National Engineering and Environmental Laboratory (INEEL) near the Central Facilities Area (CFA). The TCRA includes removing, transporting, and destroying over 50 unexploded projectiles that are filled with high explosives. This activity is being initiated to mitigate the hazards posed by these projectiles. The TCRA is justified because the exposed UXO directly threatens human lives.

# 2. SITE CONDITIONS AND BACKGROUND

The following sections describe the sites associated with this TCRA and their current conditions and characteristics. Appendix A shows the location of the sites relative to the INEEL.

## 2.1 Site Description

Before nuclear reactor research began in 1949, military activities (e.g., aerial bombing practice, naval artillery testing, explosives storage bunker testing, and ordnance disposal) took place on a large portion of what is now the INEEL. Because of these past activities associated with the former Naval Proving Ground, INEEL personnel have discovered numerous UXO devices. In addition to UXO, explosive agents such as trinitrotoluene (TNT) and cyclotrimethylene trinitramine (RDX) released from partial detonation during Naval Proving Ground tests have contaminated soil sites at the INEEL.

### 2.1.1 Location

Recently, INEEL personnel discovered over 50 live and fused UXO after a range fire burned through an area between CFA and the Test Reactor Area (TRA). It is assumed that these projectiles were related to activities at the Naval Ordnance Disposal Area (NODA). The projectiles are spread over an area larger than 2.6 $km^2$ (1 $mi^2$) between CFA and TRA, which are depicted in Figure 1 in Appendix A. In addition, several live UXO that were discovered east of the Idaho Nuclear Technology and Engineering Center (INTEC) are included in this action.

## 2.2 Other Actions

These past projects within Waste Area Group (WAG) 10 at the INEEL have been undertaken to address concerns associated with potential uncontrolled detonation of UXO and contaminated soil that could pose a health risk:

- In 1992, the *Declaration of the Record of Decision for Ordnance Interim Action Operable Unit 10-05* (DOE-ID 1992) addressed 170 acres with six ordnance sites, including the CFA-633 Naval Firing Site, the CFA Gravel Pit and French Drain, the Explosive Storage Bunkers, the National Oceanic and Atmospheric Administration Grid, the Fire Station II and Range Fire Burn Area, and the Anaconda Power Line. During the interim action prescribed by the Record of Decision for Operable Unit (OU) 10-05 (DOE-ID 1992), the action destroyed 130 UXO, detonated 61 kg (134 lb) of TNT and 47 kg (104 lb) of RDX, incinerated (offsite) 141 $m^3$ (185 $yd^3$) of contaminated soil, and landfilled 3,821 kg (8,423 lb) of metal fragments.

- A 1994 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) TCRA addressed 141 acres consisting of three ordnance sites, including NODA (surface only), the CFA Landfill, and the Twin Buttes Bombing Range. The action destroyed 1,408 UXO, detonated 10 kg (22 lb) of bulk high explosives (HEs), and landfilled 31,950 kg (70,440 lb) of metal fragments.

- A 1995 CERCLA TCRA addressed 22.56 acres of subsurface ordnance at NODA. The action destroyed 462 UXO, detonated 8 kg (18 lb) of bulk HE, and landfilled 17,900 kg (39,470 lb) of metal fragments.

- A 1996 CERCLA Non-Time-Critical Removal Action addressed 45 acres consisting of four ordnance sites including UXO east of TRA, Rail Car Explosion Area, Land Mine Fuze Burn Area,

and projectiles in the riverbed adjacent to the Rail Car Area. The action destroyed 221 UXO, detonated 29 kg (64 lb) of bulk HE, and landfilled 18,260 kg (40,250 lb) of metal fragments.

- A 1997 CERCLA Removal Action addressed 204 acres consisting of eight ordnance sites, including NODA, Rail Car Explosion Area, Mass Detonation Area (MDA), National Oceanic and Atmospheric Administration Grid, Experimental Field Station, Fire Station II, craters east of INTEC, and the Land Mine Fuze Burn Area. The action destroyed 146 UXO, detonated 156 kg (343 lb) of bulk HE, and landfilled 18,226 kg (40,182 lb) of scrap.

This TCRA is being initiated due to the urgency associated with the projectiles being identified as a hazard. These live and fused munitions are on the surface and readily accessible to site personnel. Completing this action will eliminate this risk to site field personnel.

## 2.3 State and Local Authorities' Roles

In 1989, under the authority of CERCLA, the U.S. Environmental Protection Agency (EPA) listed the INEEL on the National Priorities List. In 1991, the U.S. Department of Energy (DOE), EPA, and Idaho Department of Health and Welfare (now the Idaho Department of Environmental Quality [IDEQ]) signed the *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory* (DOE-ID 1991a) outlining the process and schedule to facilitate cleanup of areas at the INEEL—as identified in the *Action Plan for Implementation of the Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory* (DOE-ID 1991b)—in accordance with the "Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA/Superfund)" (42 USC § 9601 et seq.), the Resource Conservation and Recovery Act (RCRA), and the State of Idaho Hazardous Waste Management Act.

The lead agency for this decision is the DOE. The EPA and IDEQ will review and comment on this action memorandum. Results of this removal action will be reviewed in accordance with the schedule established in the Federal Facility Agreement and Consent Order (FFA/CO) (DOE-ID 1991a). This action will comply with state and federal applicable or relevant and appropriate requirements (ARARs). (See Section 5.2 for details.)

The U.S. Department of Energy Idaho Operations Office (DOE-ID) has concluded that a TCRA is warranted to eliminate the risk of serious injury or death to INEEL workers from uncontrolled detonation. The decision to conduct a removal action is consistent with the "National Oil and Hazardous Substances Pollution Contingency Plan" regulations (40 CFR 300.41 5[b][2][vi]). The "National Oil and Hazardous Substances Contingency Plan" lists the threat of fire or explosion as one of the factors for concluding that a release poses a threat to the public's health, welfare, or environment; therefore, an appropriate removal action is warranted.

This decision to conduct a removal action also is consistent with previous conclusions reached under CERCLA (42 USC § 9601 et seq.) regarding ordnance sites at the INEEL. It also is consistent with the past decisions to conduct TCRAs for UXO.

# 3. THREATS TO PUBLIC HEALTH AND WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

## 3.1 Threats to Public Health or Welfare

Corps of Engineers (CoE) guidance indicates a TCRA is warranted in situations where there is an immediate threat due to exposure to ordnance with the risk of serious injury or death. The ordnance must be exposed and human lives must be threatened to justify a TCRA. Because of the hazard of uncontrolled detonation to INEEL workers and the risk of serious injury or death, this removal action is determined to be time critical. This alternative was selected in accordance with the "National Oil and Hazardous Substances Pollution Contingency Plan" (40 CFR 300) regulations promulgated by the EPA under CERCLA, as amended by the Superfund Amendments and Reauthorization Act and CoE procedures and memorandums (CEHND 1115-3-524 and CEHNDD-PM-MC [385-166]).

Accidental explosive detonation at the site, if not addressed by implementing the removal action selected in this action memorandum, may present an imminent and substantial endangerment to INEEL workers' health or welfare or to the environment.

Under this TCRA, UXO will be removed from critical areas at the INEEL. The projectiles in these areas present an imminent risk to INEEL personnel and the public. It was concluded from a site report by the Army CoE explosive ordnance experts in May 1996, that these types of areas present risks that should be immediately addressed. The CoE listed these types of sites with a Risk Assessment Code of 1, which indicates an immediate hazard.

The critical areas contain live 5-in. anti-aircraft projectiles and fuses. These fused anti-aircraft items contain quantities of HE, which present a large explosion hazard if detonated. The HE in the projectiles may include TNT, RDX, or ammonium picrate (Explosive D). The fuses contain tetryl. In addition to the explosion hazard, the items also present a security risk of deliberate detonation.

# 4. ENDANGERMENT DETERMINATION

Actual, or threatened, exposure to unexploded live, fused munitions from this site, if not addressed by implementing the response action selected in this action memorandum, may present an imminent and substantial endangerment to the public health and welfare or the environment.

# 5. PROPOSED ACTIONS AND ESTIMATED COST

## 5.1 Proposed Actions

Option 1. Delayed, no removal action; no current capital costs. The future risk of uncontrolled, accidental, or deliberate detonation of UXO remains. Restricted access to areas, however, cannot be absolutely controlled and inadvertent intrusion to these areas presents a safety risk.

Option 2. Fencing of areas. Based on a previous estimate of $165,000 to fence 483 acres at the Railcar Explosion Area, the cost to fence approximately 1,700 acres would be at least $500,000. Fencing would be difficult (the 1,700-acre area consists of crisscrossing access roads and Big Lost River channels), and the fencing would not guarantee complete restricted access.

Option 3. Clearance and detonation of the UXO between CFA and TRA. Estimated at $60,000. (The Baseline Change Proposal for this action contains the cost basis for this estimate.) This option includes clearing and detonating at least 52, 5-in. anti-aircraft projectiles and fuses collected from the area between CFA and TRA and the area east of INTEC.

Cost-saving measures will be implemented to ensure that the removal action is performed in an efficient and cost-effective manner. Each projectile has been surveyed using Global Positioning System instruments, and the field team will be able to return by vehicle to the exact points.

Note: The Bechtel BWXT Idaho, LLC Explosive Ordnance Disposal-qualified health and safety officer (HSO) previously determined that all the projectiles and fuses planned for removal and detonation under this removal action are safe to transport; however, the HSO will re-examine each item prior to its transport and will make a final determination. If the HSO determines that the UXO can be safely handled and transported, it will be transported to the blast site for detonation. Although not expected, if the HSO determines that the projectile (or other items) cannot be safely transported, the UXO will be detonated in place after the proper document modifications and approvals are completed.

All ordnance and live projectiles identified shall be removed (if determined to be safe to do so), transported to the MDA, and destroyed by high order detonation using additional explosives to initiate the detonation. No UXO items will be stockpiled overnight at the MDA. Each day, the field team will move as many UXO items as practicable, and at the end of each workday will detonate the items. The MDA has been used in the past for similar disposal detonations; its location is shown in Figure 1. All the projectiles are exposed on the ground surface and excavations are not expected to be necessary.

This action will address the immediate hazards associated with these projectiles and fuses, namely inadvertent detonation and injury to personnel. All other actions associated with ordnance and/or explosives still present on the INEEL are being addressed as part of the overall OU 10-04 remedial investigation/feasibility study process.

All activities will be performed using currently accepted practices and standard operating procedures listed in the project health and safety plan, including the DOE M 440.1-1, "DOE Explosives Safety Manual."

### 5.1.1 Project Schedule

The action is projected to be completed before June 2003.

## 5.2 Applicable or Relevant and Appropriate Requirements

The selected removal action alternative will be protective of human health and the environment and will be performed in a cost-effective manner. The removal action complies with those federal and state ARARs as identified for the scope of this action. The following subsections discuss chemical-specific, action-specific, and location-specific ARARs pertinent to this removal action. The removal action ARARs are shown in Table 1.

Table 1. Ordnance removal action applicable or relevant and appropriate requirements.

| Identification | ARAR Reference | ARAR Provision | ARAR Application |
|---|---|---|---|
| Action-specific | 40 CFR 122.26 | "Storm Water Discharges" | Applicable. Storm Water Pollution Prevention Plan, Best Management Practices compliance for construction activities associated with clearing, grubbing, and excavating. |
| | 40 CFR 266, Subpart M | "Military Munitions" | Applicable. Effective date is August 12, 1997. Outlines the requirements for defining unexploded ordnance as a solid waste and addresses the transportation and storage of waste munitions and explosives. |
| | IDAPA 58.01.01.581 | "Prevention of Significant Deterioration Increments" | Relevant and appropriate. Applies to total suspended particulate emissions from blasting operations. Air modeling to demonstrate insignificant impacts is required. |
| | IDAPA 58.01.01.650 et seq. | "Rules for Control of Fugitive Dust Emissions" | Applicable. Best Management Practices fugitive dust control from excavation, blasting, and backfilling activities. |
| | IDAPA 58.01.05.004 and .005 (40 CFR 260.10 and 261.2) | "Definition of Solid Waste" | Applicable. Requirements for defining solid waste from removal action activities. |
| | IDAPA 58.01.05.005 (40 CFR 261.3, .7, .10) | "Identification and Listing of Hazardous Waste and Residues of Hazardous Waste in Empty Containers" | Applicable. Requirements for identifying characteristic waste from removal action activities. Standards for residues of hazardous waste in empty containers and scrap metal. |
| | IDAPA 58.01.05.005 (40 CFR 261.6) | "Requirements for Recyclable Materials" | Applicable. Applies to hazardous waste that is recycled or used in a manner constituting disposal. Applies to scrap metals meeting heavy metals toxicity characteristic leaching procedure from ordnance removal actions. Disposition must be through RCRA permitted treatment, storage, and disposal facilities or scrap metal recyclers. Inventory records must be maintained. This material is not subject to 40 CFR 124, 262B, 266, 268, and 270. |

Table 1. (continued)

| Identification | ARAR Reference | ARAR Provision | ARAR Application |
|---|---|---|---|
| | IDAPA 58.01.05.006 (40 CFR 262.11) | "Hazardous Waste Determinations" | Applicable. Requirements for determining RCRA hazardous waste classification of ordnance and ancillary waste streams from removal action activities. All waste streams will be sampled prior to disposal and are expected to be nonhazardous. If hazardous, 40 CFR 268, "Land Disposal Restrictions," would be applicable. |
| | IDAPA 58.01.05.009 (40 CFR 265.382) | "Open Burning; Waste Explosives" | Relevant and appropriate. Requires operators to maintain a minimum safe distance when detonating unexploded ordnance to protect human health. The TM-60 series distances will be used, as they are more restrictive than 40 CFR 265.382. |
| Chemical-specific | IDAPA 58.01.01.161 and .585 | "Rules for the Control of Air Pollution in Idaho (Air Toxic Rules)" | Applicable. Toxic Air Pollutant analysis is required for expected cyclonite and 1,3-dinitrobenzene emissions from blasting activities. |
| Location-specific | 40 CFR 6.301 | "Landmarks, Historical, and Archeological Sites" | Relevant and appropriate. A biological survey will be performed prior to initiation of work at each site. If an activity may cause irreparable loss or destruction of significant scientific, prehistoric, historic, or archeological date, preservation and data recovery shall be conducted. |
| | 40 CFR 6.302 | "Wetlands, Floodplains, Important Farmlands, Coastal Zones, Wild and Scenic Rivers, Fish and Wildlife, and Endangered Species" | Relevant and appropriate. Wetlands protection and floodplain management requires federal agencies conducting certain activities to avoid adverse impacts on the wetlands and floodplains. Compliance is covered in the Stormwater Pollution Prevention Plan |
| To be considered | IDAPA 58.01.01.575–577 (40 CFR 50) | "National Ambient Air Quality Standards (NAAQS)" | |
| To be considered | DOE Order 5480.4A | "Environmental Protection, Safety, and Health Protection Standards" | |

ARAR = applicable or relevant and appropriate requirement
CFR = *Code of Federal Regulations*
DOE = U.S. Department of Energy
IDAPA = Idaho Administrative Procedures Act
NAAQS = National Ambient Air Quality Standards
RCRA = Resource Conservation and Recovery Act

### 5.2.1 Chemical-Specific Applicable or Relevant and Appropriate Requirements

Idaho Administrative Procedures Act (IDAPA) 58.01.01.161 and .585, "Rules for the Control of Air Pollution in Idaho (Air Toxic Rules)," have been identified as chemical-specific ARARs for this removal action.

### 5.2.2 Action-Specific Applicable or Relevant and Appropriate Requirements

The substantive requirements of IDAPA 58.01.01.650, "Rules for Control of Fugitive Dust Emissions," are applicable. The removal action will comply with the requirements by using good management practice to control fugitive dust.

In addition, 40 *Code of Federal Regulations* (CFR) 122.26, "Storm Water Discharges," is applicable. This section requires a Storm Water Pollution Prevention Plan that directs the field operators to avoid fouling of adjacent waterways. This plan will be prepared and used to guide the fieldwork using the Best Management Practices for compliance of activities associated with clearing, grubbing, and excavating. The "Military Munitions Rule" (40 CFR 266, Subpart M) also is applicable, effective July 23, 2002. This rule identifies when conventional and chemical military munitions are considered solid waste and potentially hazardous waste under RCRA. Under this section, a munition would not be considered solid waste if it had been used for its intended purpose, that is, for training or research, development, testing and evaluation of weapons or weapon systems, or if recovered, collected, and destroyed on an active or inactive range during clearance activities. The exception is if unexploded buried items are found and the burial was not a result of intended use. The rule also exempts from certain RCRA regulations transporters of hazardous waste across a single property.

"Criteria for Identifying the Characteristics of Hazardous Waste" (40 CFR 260.10) and "Definition of Solid Waste" (40 CFR 261.2) are applicable. This section gives the requirements for defining a solid waste from removal actions. The removal action will apply good management practices to the identification and disposal of solid waste.

"Criteria for Identifying the Characteristics of Hazardous Waste" (40 CFR 260.10) and "Identification and Listing of Hazardous Waste" (40 CFR 261) are applicable. This section gives the requirements for defining a characteristic waste. Pieces of explosives (TNT and RDX) are considered a RCRA characteristic waste under Section 261.23, "Characteristic of Reactivity," #6. It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

"Requirements for Recyclable Materials"(40 CFR 261.6) is applicable. This section applies to hazardous waste that is recycled or used in a manner constituting disposal. The removal action will apply good management practices in recycling and disposal decisions.

"Residues of Hazardous Waste in Empty Containers" (40 CFR 261.7) is applicable. Any hazardous waste remaining in either (1) an empty container or (2) an inner liner removed from an empty container, as defined in the next paragraph, is not subject to regulation under Parts 261 through 265, or Part 268, 270, or 124 of this chapter, or to the notification requirements of Section 3010 of RCRA.

A container or an inner liner removed from a container that has held any hazardous waste—except a waste that is a compressed gas or that is identified as an acute hazardous waste listed in Sections 261.31, 261.32, or 261.33(e) of this chapter—is empty if:

- All waste has been removed that can be removed using the practices commonly employed to remove materials from that type of container (e.g., pouring, pumping, and aspirating)

- No more than 2.5 cm (1 in.) of residue remains on the bottom of the container or inner liner

- No more than 3% by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 100 gal in size

    - No more than 0.3% by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 110 gal in size.

"Hazardous Waste Determinations" (40 CFR 262.11) is applicable. This section contains the requirements for determining RCRA hazardous waste classification of ordnance and ancillary waste streams from removal action activities and will be used during the removal action.

"Open Burning; Waste Explosives" (40 CFR 265.382) is relevant and appropriate. Operators are required to maintain a minimum safe distance from detonating unexploded ordnance to protect human health or the environment. The substantive requirements of this section are considered relevant and appropriate for this removal action. The distances listed in this requirement are not as stringent as the requirements specified by the U.S. Department of Defense Joint Services Technical Manual (TM) -60 Series. The TM-60 Series documents will be used to govern the safe handling and demolition of unexploded ordnance, including the greater safe distances.

The selected removal action will be protective of human health and the environment and will be performed cost effectively. The removal action complies with those federal and state ARARs as identified for the scope of this action. The substantive requirements concerning total suspended particulate (TSP) in IDAPA 58.01.01.581, "Prevention of Significant Deterioration Increments," are relevant and appropriate to this action. Air modeling to estimate potential TSP emissions from detonations conducted during the OU 10-05 Interim Removal Action was used to demonstrate that the potential TSP emissions from detonations under this removal action would not have a significant impact on prevention of significant deterioration increments, in accordance with the requirements of "National Oil and Hazardous Substances Pollution Contingency Plan" (40 CFR 300) regulations for WAG 10.

The substantive requirements of IDAPA 58.01.01.161, "Rules for the Control of Air Pollution in Idaho (Air Toxic Rules)," are applicable. The removal action will use good management practices during blasting activities.

Idaho air toxic regulations, effective May 1, 1994, establish Emission Screening Levels and Acceptable Ambient Increments for noncarcinogenic air pollutants. Toxic air pollutant noncarcinogenic increments are listed in IDAPA 58.01.01.585.

This removal action may have emissions of the following compounds:

- Cyclonite

- 1,3-dinitrobenzene.

Cyclonite and 1,3-dinitrobenzene are present on the noncarcinogenic list and have the limits shown below:

| Compound | Emission Screening Limit (lb/hr) | Ambient Increment ($mg/m^3$) |
|---|---|---|
| Cyclonite | 0.1 | 0.015 |
| 1,3-dinitrobenzene | 0.067 | 0.01 |

It has been conservatively estimated—based on knowledge of explosives, military technical manuals on ordnance and the associated compounds (NAVSEA OP 1664, Volumes 1 and 2, U.S. Explosive Ordnance), experience, and air modeling during the OU 10-05 Interim Remedial Action—that less than 10 lb of cyclonite and 1,3-dinitrobenzene is present in the total quantity of material to be treated during this removal action. If it is further assumed that none of this material is destroyed during detonations, the total project emissions are 10 lb of cyclonite and 10 lb of 1,3-dinitrobenzene. The annual average hourly emission rates for these compounds are 0.0011 lb/hr [10/(365 × 24)]. This emission rate, even without using the 0.1 factors for short-term sources, is well below the Emission Screening Limit; thus, no additional analyses are required to demonstrate compliance with air toxic regulations.

Appropriate measures will be used to address storm water discharge. A storm water pollution prevention plan will be written and approved, and Best Management Practices will be applied to all ordnance remediation activities. Solid waste determinations will be made according to Management Control Procedure (MCP) -62, "Waste Generator Services—Low-Level Waste Management," and Form L-0435 will be completed with necessary documentation. For recycling waste, Form L-1450 will be completed for excess authorization.

Open burning/detonation of waste explosives (IDAPA 58.01.05.009) will be performed in a manner protective of human health. Appropriate safe distance will be used as reference in the TM-60 series.

### 5.2.3 Location-Specific Applicable or Relevant and Appropriate Requirements

"Landmarks, Historical and Archeological Sites" (40 CFR 6.301) applies to this removal action.

"Wetlands, Floodplains, Important Farmlands, Coastal Zones, Wild and Scenic Rivers, Fish and Wildlife, and Endangered Species" (40 CFR 6.302) will be applied to this removal activity.

### 5.2.4 Off-Site Regulatory Requirements

No off-Site shipments of waste are expected with the 1997 removal action; therefore, no off-Site requirements are applicable.

### 5.2.5 To Be Considered Technical, Health, and Safety Standards

The Department of Defense Joint Service TM-60 Series will be used for the safe handling and demolition of ordnance to protect human safety and the environment.

# 6. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

The removal action, if delayed, is an imminent risk to INEEL personnel and to the public. The presence of live projectiles and fuses present an endangerment to INEEL personnel and the environment. Although uncontrolled detonations have not yet occurred at the INEEL, it is plausible for an accidental or unplanned detonation to take place as long as the UXO remains in its present state.

# 7. OUTSTANDING POLICY ISSUES

No outstanding policy issues are associated with this action.

The activities covered by this action memorandum will be completed in compliance with the FFA/CO (DOE-ID 1991a). The FFA/CO ensures that DOE-ID and its contractors comply with federal and state environmental regulations for cleanup at each waste area. In compliance with the FFA/CO and based on agreements with the DOE-ID, EPA and IDEQ, WAG 10 is conducting this action on the UXO to remove an imminent hazard. A summary report of the activities completed under this action will be made available to the public in compliance with the Community Relations Plan, which applies to all CERCLA activities at the INEEL.

# 8. ENFORCEMENT

The DOE-ID is conducting this removal action as the lead agency under the authority of 40 CFR 300.5, "Definitions," and 40 CFR 300.415 (b)(1), "Removal Action."

# 9. RECOMMENDATION

This decision document provides for the removal of UXO from critical areas and detonation within the UXO area between CFA and TRA at the INEEL. It was developed in accordance with CERCLA and is consistent with the "National Oil and Hazardous Substances Pollution Contingency Plan" (40 CFR 300). Conditions at this site meet the 40 CFR 300.415(b)(2) criteria for a removal. This action was approved by DOE-ID on August 15, 2002, through a Baseline Change Proposal. The funding for this project is being provided by DOE-ID. The DOE-ID recommends Option 3, described in this document, to be implemented in accordance with the requirements set forth herein.

# 10. REFERENCES


40 CFR 6.301, 2002, "Landmarks, Historical and Archeological Sites," *Code of Federal Regulations,* Office of the Federal Register, July 2002.

40 CFR 6.302, 2002, "Wetlands, Floodplains, Important Farmlands, Coastal Zones, Wild and Scenic Rivers, Fish and Wildlife, and Endangered Species," *Code of Federal Regulations,* Office of the Federal Register, July 2002.

40 CFR 50, 2002, "National Primary and Secondary Ambient Air Quality Standards," *Code of Federal Regulations,* Office of the Federal Register, July 2002.

40 CFR 122.26, 2003, "Storm Water Discharges," *Code of Federal Regulations,* Office of the Federal Register, February 2003.

40 CFR 124, 2002, "Procedures for Decisionmaking," *Code of Federal Regulations,* Office of the Federal Register, July 2002.

40 CFR 260.10, 2002, "Definitions," *Code of Federal Regulations,* Office of the Federal Register, July 2002.

40 CFR 261, 2003, "Identification and Listing of Hazardous Waste," *Code of Federal Regulations,* Office of the Federal Register, February 2003.

40 CFR 261.2, 2003, "Definition of Solid Waste," *Code of Federal Regulations,* Office of the Federal Register, February 2003.

40 CFR 261.3, 2003, "Definition of Hazardous Waste," *Code of Federal Regulations,* Office of the Federal Register, February 2003.

40 CFR 261.6, 2003, "Requirements for Recyclable Materials, " *Code of Federal Regulations,* Office of the Federal Register, February 2003.

40 CFR 261.7, 2003, "Residues of Hazardous Waste in Empty Containers," *Code of Federal Regulations,* Office of the Federal Register, February 2003.

40 CFR 261.10, 2003, "Criteria for Identifying the Characteristics of Hazardous Waste," *Code of Federal Regulations,* Office of the Federal Register, February 2003.

40 CFR 261.23, 2003, "Characteristics of Reactivity," *Code of Federal Regulations,* Office of the Federal Register, February 2003.

40 CFR 262, 2002, "Standards Applicable to Generators of Hazardous Waste," *Code of Federal Regulations,* Office of the Federal Register, February 2002.

40 CFR 262, Subpart B, 2002, "The Manifest," *Code of Federal Regulations,* Office of the Federal Register, February 2002.

40 CFR 262.11, 2002, "Hazardous Waste Determinations," *Code of Federal Regulations,* Office of the Federal Register, February 2002.

40 CFR 265.382, 2002, "Open Burning; Waste Explosives," *Code of Federal Regulations,* Office of the Federal Register, February 2002.

40 CFR 266, 2003, "Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities," *Code of Federal Regulations,* Office of the Federal Register, January 2003.

40 CFR 266, Subpart M, 2003, "Military Munitions," *Code of Federal Regulations,* Office of the Federal Register, January 2003.

40 CFR 268, 2003, "Land Disposal Restrictions," *Code of Federal Regulations,* Office of the Federal Register, January 2003.

40 CFR 270, 2002, "EPA Administered Permit Programs: the Hazardous Waste Permit Program," *Code of Federal Regulations,* Office of the Federal Register, December 2002.

40 CFR 300, 2003, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations,* Office of the Federal Register, January 2003.

40 CFR 300.5, 2003, "Definitions," *Code of Federal Regulations,* Office of the Federal Register, January 2003.

40 CFR 300.415(b)(1), 2003, "Removal Action," *Code of Federal Regulations,* Office of the Federal Register, January 2003.

42 USC § 9601 et seq., 2001, "Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA/Superfund)," *United States Code*, January 2001.

DOE O 440.1A, 1998, "Worker Protection Management for DOE Federal and Contractor Employees," U.S. Department of Energy, March 27, 1998.

DOE O 5480.4, 1993, "Environmental Protection, Safety, and Health Protection Standards," U.S. Department of Energy, January 7, 1993.

DOE M 440.1-1, 1995, "DOE Explosives Safety Manual," U.S. Department of Energy, September 30, 1995.

DOE-ID, 1991a, *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory,* Administrative Record No. 1088-06-29-120, U.S. Department of Energy Idaho Operations Office; U.S. Environmental Protection Agency, Region 10; Idaho Department of Health and Welfare, December 1991.

DOE-ID, 1991b, *Action Plan for Implementation of the Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory,* Administrative Record No. 1088-06-29-120, U.S. Department of Energy Idaho Operations Office; U.S. Environmental Protection Agency, Region 10; Idaho Department of Health and Welfare, December 1991.

DOE-ID, 1992, *Declaration of the Record of Decision for Ordnance Interim Action Operable Unit 10-05*, 5137, U.S. Department of Energy Idaho Operations Office, Idaho Falls, Idaho, June 1992.

IDAPA 58.01.01.161, "Rules for the Control of Air Pollution in Idaho (Air Toxic Rules)," Section 161, "Toxic Substances," Idaho Administrative Procedures Act.

IDAPA 58.01.01.575–577, "National Ambient Air Quality Standards (NAAQS)," Idaho Administrative Procedures Act.

IDAPA 58.01.01.581, "Prevention of Significant Deterioration Increments, " Idaho Administrative Procedures Act.

IDAPA 58.01.01.585, "Toxic Air Pollutants Non-Carcinogenic Increments," Idaho Administrative Procedures Act.

IDAPA 58.01.01.650 et seq., "Rules for the Control of Fugitive Dust Emissions," Idaho Administrative Procedures Act.

IDAPA 58.01.05.004, "Definition of Solid Waste," Idaho Administrative Procedures Act.

IDAPA 58.01.05.005, "Identification and Listing of Hazardous Waste and Residues of Hazardous Waste in Empty Containers," Idaho Administrative Procedures Act.

IDAPA 58.01.05.006, "Hazardous Waste Determinations," Idaho Administrative Procedures Act.

IDAPA 58.01.05.009, "Open Burning; Waste Explosives," Idaho Administrative Procedures Act.

MCP-62, "Waste Generator Services—Low-Level Waste Management," Rev. 5, *Manual 17–Waste Management,* January 2003.

# Appendix A

# Map of Idaho National Engineering and Environmental Laboratory Unexploded Ordnance Areas

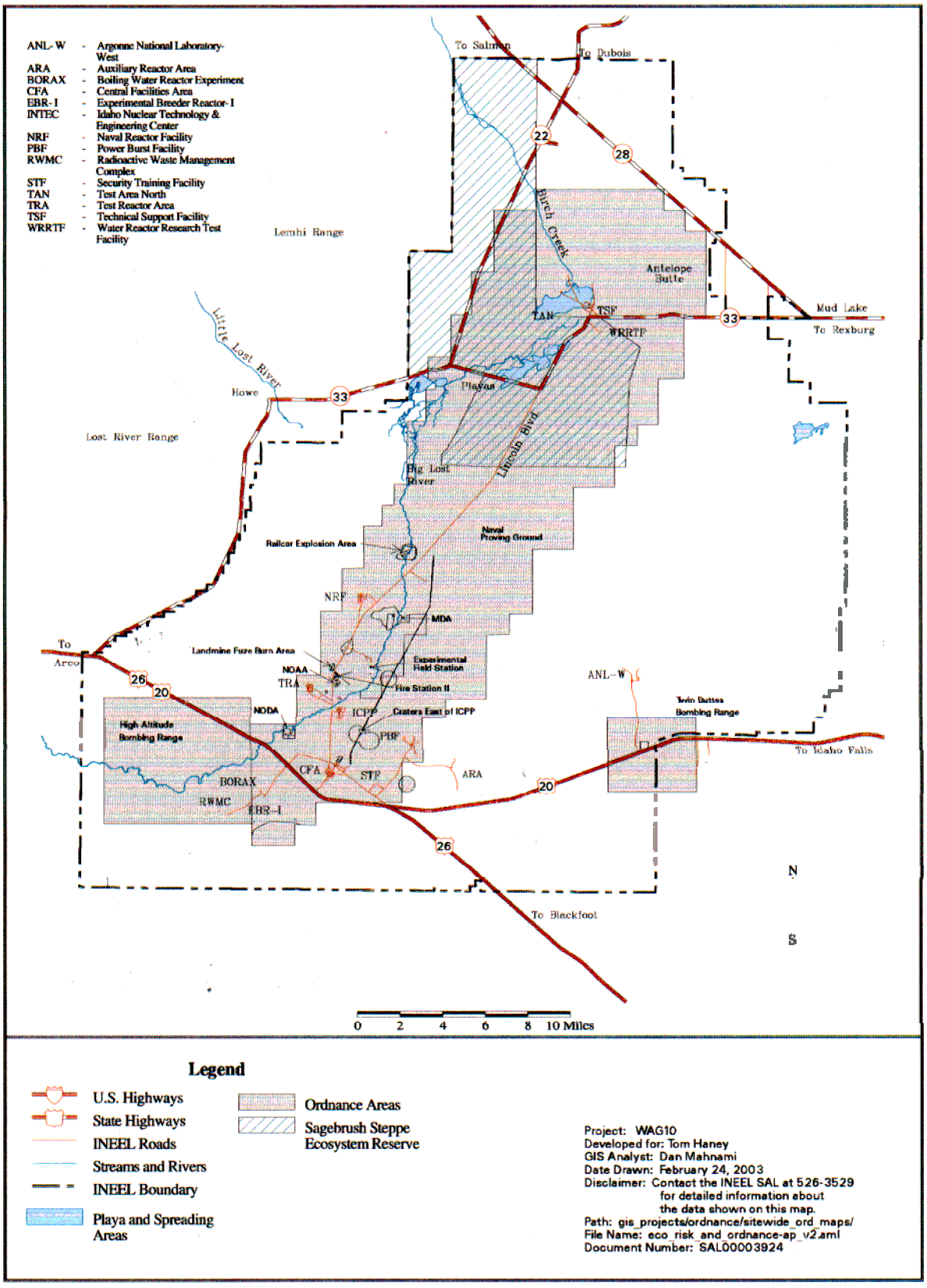



Figure A-1. Locations of unexploded ordnance areas at the INEEL.